

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: JAMES DAVIES et al.

Application No.: 09/883,094

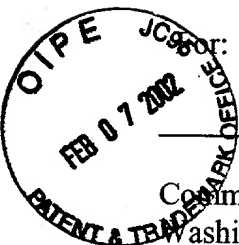
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Client Reference No. NONE



For: METHOD AND APPARATUS
FOR A PRODUCT LIFECYCLE
MANAGEMENT PROCESS

Commissioner of Patents and Trademarks
Washington, D.C. 20231
BOX PRELIMINARY AMENDMENT

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Name: Tracie Brooks

Tracie Brooks 01-04-02
Signature Date

PRELIMINARY AMENDMENT

Sir:

Prior to examination of the above-identified application, please amend the application as follows. No new matter is introduced hereby.

In accordance with 37 CFR §1.121 a marked up version of the above-amended paragraph(s) illustrating the changes introduced by the forgoing amendment(s) are provided in Appendix A.

In the Claims:

Please amend the claims by substituting the following claims for the corresponding
10 previously pending claims of the same number(s) and adding claims 49-57. Please cancel claim 5,
23, 27, 29, and 48 without prejudice.

Begin Claims As Herein Amended

1. A method of designing a process lifecycle using a computer system comprising:
presenting a series of user interfaces allowing a process architect to define a process lifecycle
15 using business model objects as building blocks;

presenting input indications in said series of user interfaces allowing a process architect to specify what parts of said defined process lifecycle can be deleted or modified;

registering input of a process architect to create one or more process lifecycles; and

wherein said parts of said process lifecycle comprises one or more of said business model
5 objects or one or more relationships between said business model objects.

2. A method of initiating a product development process using a computer system comprising:

presenting one or more user interfaces allowing a program manager to select from one or more defined process lifecycles;

10 presenting a series of user interfaces allowing a program manager to modify those parts of a selected process lifecycle that are specified as modifiable in said process lifecycle;

presenting a series of user interfaces allowing a program manager to make assignments of process implementers to roles in said process lifecycle; registering input of a program manager to create one or more program lifecycles; and

15 initiating a program lifecycle as a program for automated execution in response to an indication from a program manager.

3. A method of executing a product development program using a computer system comprising:

20 using an instance of a product development process, with one or more predefined roles assigned to one or more process implementers, to coordinate activity of various resources;

presenting one or more user interfaces to one or more process implementers to provide a task list of resource assignments to said one or more process implementers;

25 presenting one or more user interfaces to one or more process implementers to receive data indicating completed or uncompleted resource assignments from said one or more process implementers;

aggregating data received from said one or more process implementers into project summary data; and

presenting project summary data to a program manager.

4. The method of claim 1 wherein one or more business objects are associated with one or more states that characterize said one or more business object's status.

6. The method of claim 3 wherein behavior of a business object depends on one or more business rules.

5 7. The method of claim 3 wherein business objects can transition between states as a result of changes of state of other business objects in accordance with one or more business rules.

8. The method of claim 7 wherein business rules can be defined during the initial design of a lifecycle or during the modification of a lifecycle for a particular program or can be imposed by the overall design of the software system.

9. The method of claim 3 wherein business objects can be combined to form a structure or hierarchy where rules associated with a business object are based on one or more factors comprising:

contents of said business object;
business rules of said business object;
relationships of said business object to other business objects; and
parent business objects of said business object.

10. The method of claim 9 further wherein:
contents based rules comprise one or more of:

20 a gate review business object cannot be complete until all its content questionnaires are complete; and

a project business object cannot be completed until all its phases are complete;
business rules of a business object comprise:

lifecycle applicability rules that determine for which type of program a lifecycle can be used;

25 environment sensitivity rules that determine the behaviors and/or views of a business object based on the environment of a business object;

relationships based rules comprise:

when a deliverable has a start to finish relationships with another deliverable said deliverable cannot go active until a predecessor deliverable is complete; and

parent based rules comprise one or more of:

a phase is a parent to a deliverable;

5 a lifecycle is a parent to phases; and

a methodology is a parent to lifecycles.

12. The method of claim 3 wherein said business model objects can comprise one or more of: methodology, lifecycle, role, phase, deliverable, resource assignment, fixed cost, and risk.

13. A computer system software engine usable for designing process lifecycles and managing and executing instances of process lifecycles for particular programs comprising: one or more lifecycles;

wherein each of said lifecycles comprises one or more phases; and

wherein each of said phases can comprise one or more deliverables.

14. The system of claim 13 further comprising:

wherein each of said lifecycles can comprise one or more of role, cost, resource assignment, and risk data.

15. The system of claim 13 further comprising:

wherein each of said phases can comprise one or more of role, cost, resource assignment, and risk data.

20 16. The system of claim 13 further comprising:

wherein each of said deliverables can comprise one or more of role, cost, resource assignment, and risk data and one or more files of any type.

17. The method of claim 3 wherein said states can comprise one or more of: pending, planning, active, complete, inactive, canceled; and additional states.

25 18. The method of claim 3 wherein object state transitions can be manual or automatic.

19. The method of claim 3 wherein automatic object state transitions can occur based on transitions of other related objects.

20. The method of claim 3 wherein an object state transition can cause other cascading object state transitions that thereby automate aspects of the development process.

5 21. The method of claim 1 wherein a resource assignment object can be initialized to be activated just-in-time, e.g., only after all predecessors to a deliverable or phase of program containing the resource assignment are complete.

22. A method of managing a product development process using a computer system comprising:

10 defining elements of a process lifecycle in a structured hierarchy of resource assignments, phases and deliverables;

wherein once said structured hierarchy of phases and deliverables is specified, said computer system is capable of enforcing required aspects of said process lifecycle; and

wherein once said structured hierarchy of phases and deliverables is specified said computer system automates execution of a program by distributing resource assignments as they are needed and providing a continuously updated living schedule integrating progress status of all aspects of a program.

25 25. The method of claim 22 further comprising:

20 allowing a process architect to indicate what parts of the process/lifecycle are mandatory and what parts (where parts comprise objects, their relationships and the lifecycle itself) can be changed by a program manager or team in order to enforce process parameters.

26. The method of claim 22 further comprising:

25 allowing a process architect to classify a lifecycle based on a series of user-defined criteria that will determine the conditions under which the lifecycle can be used, wherein said user-defined criteria can comprise one or more of:

the type of product being developed;

the market to which the product will be sold; a business unit for which the product is intended, so that the computer system can assist a program manager in selecting the most appropriate lifecycles for a development program.

28. The method of claim 22 further comprising:

5 allowing a program manager to indicate other users that will be part of a program by assigning individuals to roles specified in a program lifecycle;

creating an association between roles or users and program tasks and

thereby supporting automated execution including putting resource assignments on user's tasks list when those resource assignments become active and allowing users to communicate with users when the program is activated.

30. The method of claim 28 wherein a task sent to users may have linked to them documents or other information needed to complete said task.

31. The method of claim 28 further comprising:

providing one or more users, such as process implementers and project managers, with real time/living schedule reports that reflect the latest updates and revisions.

34. The method of claim 22 further comprising:

enforcing a consistent process structure/hierarchy comprising lifecycles, phases, deliverables, and/or resource assignments;

enforcing a consistent mapping of organizational structure comprising divisions and/or business units;

consolidating schedule, cost, risk and resource information; and

providing a user with a requested report at any requested level in the process hierarchy and for any requested part of the company.

35. The method of claim 22 further comprising:

25 comparing real time forecast data from individual users to plan values for schedule and costs;

changing the state of an indicator when user defined tolerances are exceeded; and

notifying users of impending schedule slips or cost overruns wherein said comparing comprises comparing forecast duration to plan duration and comparing forecast cost to plan cost.

38. A method of evaluating and comparing a group of product development programs in a portfolio using a computer system comprising:

5 allowing a user to define program-specific metrics for two or more programs that will be tracked by said computer system;

allowing a user to define how metric values will be obtained during execution of a program; and

10 presenting to a user multi-program portfolio data regarding multiple programs' phase, cost, schedule, and risk status.

41. The method of claim 38 further wherein said metrics can be derived from quantitative responses to one or more questions.

49. The method of claim 9 wherein parent based rules further comprise one or more of: a workflow process in a deliverable is automatically initiated when the deliverable becomes active;

when a phase is activated, the deliverables it contains are activated.

50. The method of claim 12 wherein said business model objects further can comprise one or more of: program and gate review.

20 51. The method of claim 12 wherein said business model objects further can comprise one or more of: codes and metrics.

52. The system of claim 13 further comprising: one or more methodologies; wherein each of said methodologies comprises one or more similar lifecycles.

25 53. The method of claim 3 wherein a resource assignment object can be activated just-in-time, e.g., only after all predecessors to a deliverable or phase of program containing the resource assignment are complete.

54. The method of claim 22 further comprising:

defining states associated with phases and deliverables that characterize their status;

after said defining, providing access to one or more process managers to input initial information regarding phases and deliverables including relationships and dependencies between

phases and deliverables and to indicate goals for phases and deliverables;

providing access to said computer system to one or more process implementers in order for said implementers to enter data indicating status of resource assignments;

in accordance with said defined process/lifecycle phases and deliverables, informing one or more process implementers of updated resource assignments and due dates;

in response to a request from a manager, providing overview and drill-down reports of updated process/lifecycle status.

55. The method of claim 22 further comprising:

calculating a risk score for a risk by combining scores for the risk probability and the risk severity; and

adding a number of individual risk scores to get a total risk index.

56. The method of claim 36 further wherein a schedule slip is determined by examining changes in one or more durations.

57. The method of claim 21 wherein activation of a resource assignment object triggers one or more task notifications; and

further comprising automatically notifying a process implementer using said computer system of an assigned task in response to said activated resource assignment object.

End Claims As Herein Amended

These amendments are made without prejudice and are not to be construed as abandonment of the previously claimed subject matter. In accordance with the requirements of 37 C.F.R. § 1.121, a marked up version showing the changes to the claims, is attached herewith as Appendix A. For the Examiner's convenience, a complete claim set of the currently pending claims is also submitted herewith as Appendix B.

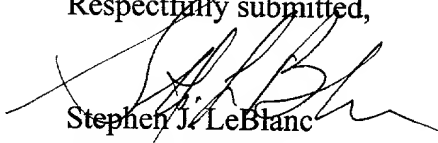
If a telephone conference would expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (510) 337-7855.

Dated: January 4, 2002

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Respectfully submitted,



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2005 FEB 10 16:00:00

APPENDIX A

"Marked up" claims illustrating the amendments made to the claims of 09/883,094 with entry of this amendment, with added text underlined and ~~deleted text struck through~~. The "[|]" mark outside the left margin indicates lines with text changes.

5 **What is claimed:**

1. A method of designing a process lifecycle using a computer system comprising:
presenting a series of user interfaces allowing a process architect to define a process lifecycle
using business model objects as building blocks; ~~and~~
presenting input indications in said series of user interfaces allowing a process architect to
specify what parts of said defined process lifecycle can be deleted or modified;
registering input of a process architect to create one or more process lifecycles; and
wherein said parts of said process lifecycle comprises one or more of said business model
objects or one or more relationships between said business model objects.

2. A method of initiating a product development process using a computer system
comprising:
presenting one or more user interfaces allowing a program manager to select from one or
more defined process lifecycles;
presenting a series of user interfaces allowing a program manager to ~~modified~~ those parts
of a selected process lifecycle that are specified as modifiable in said process lifecycle; ~~and~~
presenting a series of user interfaces allowing a program manager to make assignments of
process implementers to roles in said process lifecycle; registering input of a program manager to
create one or more program lifecycles; and
initiating a program lifecycle as a program for automated execution in response to an
indication from a program manager.

3. A method of executing a product development program using a computer system
comprising:
using an instance of a product development process, with one or more predefined roles
assigned to one or more process implementers, to coordinate activity of various resources;

presenting one or more user interfaces to one or more process implementers to provide a task list of resource assignments to said one or more process implementers;

presenting one or more user interfaces to one or more process implementers to receive data indicating completed or ~~incompleted~~ uncompleted ~~tasks~~ resource assignments from said one or more process implementers;

aggregating data received from said one or more process implementers into project summary data; and

presenting project summary data to a program manager.

4. The method of claim 1 wherein one or more business objects are associated with one or more states that characterize said one or more ~~a~~ business object's status.

~~5. The method of claim 4 wherein business objects when first created have a particular state.~~

6. The method of claim 3 4 wherein behavior of a business object depends on one or more business rules.

7. The method of claim 3 4 wherein business objects can transition between states as a result of changes of state of other business objects in accordance with one or more business rules.

8. The method of claim 7 wherein business rules can be defined during the initial design of a lifecycle or during the modification of a lifecycle for a particular ~~project-program~~ and or can also be imposed by the overall design of the software system.

9. The method of claim 3 4 wherein business objects can be combined to form a structure or hierarchy where rules associated with a business object are based on one or more factors comprising:

contents of said business object;

business rules of said business object;

relationships of said business object to other business objects; and

parent business objects of said business object.

10. The method of claim 94 further wherein;

contents based rules comprise one or more of: ~~business objects can be combined to form a structure or hierarchy where rules associated with a business object are based on one or more factors comprising:~~

5 ~~contents of said business object such as~~

a gate review business object cannot be complete until all its content questionnaires are complete; and

a project business object cannot be completed until all its phases are complete;

business rules of a said business object comprise:

10 ~~such as~~ lifecycle applicability rules that determine for which type of program a lifecycle can be used;

environment sensitivity rules that determine the behaviors and/or views of a business object based on the environment of a business object;

relationships based rules comprise: ~~of said business object to other business objects such as~~

15 ~~when a deliverable has a start to finish relationships with another deliverable said deliverable cannot go active until a predecessor deliverable is complete; and~~

parent based rules comprise one or more of:

~~business objects of said business object such as~~ a phase is a parent to a deliverable;

a lifecycle is a parent to phases; and

20 a methodology is a parent to lifecycles; ~~and as further examples, a workflow process in a deliverable is automatically initiated when the deliverable becomes active; when a phase is activated, the deliverables it contains are activated depending said deliverables relationships.~~

11. The method of claim 2 wherein said computer system presents interfaces to a program manager through which said manager:

25 inputs profile information;

receives and reviews candidate lifecycles;

selects a desired lifecycle;

modifies a selected lifecycle;

creates an instance of a selected and/or modified lifecycle for a particular development program; and

assigns users to predefined roles for said particular development program.

12. The method of claim 31 wherein said business model objects can comprise one or more of: methodology, lifecycle, role, phase, deliverable, resource assignment, fixed cost, and risk.

13. A computer system software engine usable for designing process lifecycles and managing and executing instances of process lifecycles for particular ~~projects~~ programs comprising: one or more ~~methodologies~~;

~~wherein each of said methodologies comprises one or more similar lifecycles;~~

wherein each of said lifecycles comprises one or more phases; and

wherein each of said phases can comprise one or more deliverables.

14. The system of claim 13 further comprising:

wherein each of said lifecycles can comprise one or more of role, cost, resource assignment, and risk data.

15. The system of claim 13 further comprising:

wherein each of said phases can comprise one or more of role, cost, resource assignment, and risk data.

16. The system of claim 13 further comprising:

wherein each of said deliverables can comprise one or more of role, cost, resource assignment, and risk data and one or more files of any type. ~~workflows, templates, and forms.~~

17. The method of claim 31 wherein said states can comprise one or more of: pending, planning, active, complete, inactive, canceled; and additional states.

18. The method of claim 31 wherein object state transitions can be manual or automatic.

19. The method of claim 31 wherein automatic object state transitions can occur based on ~~similar~~ transitions of other related objects.

20. The method of claim 34 wherein an object state transition can cause other cascading object state transitions that thereby automate aspects of the development process.

21. The method of claim 1 wherein a resource assignment object can be initialized to be activated just-in-time, e.g., only after all predecessors to a deliverable or phase of program containing the resource assignment are complete;

~~wherein activation of a resource assignment object triggers one or more task notifications; and further comprising: automatically notifying a process implementer using said computer system of a task in response to said activated resource assignment object.~~

22. A method of managing a product development process using a computer system comprising:

defining elements of a process lifecycle in a structured hierarchy of resource assignments, phases and deliverables;

wherein once said structured hierarchy of phases and deliverables is specified, said computer system is capable of enforcing required aspects of said process lifecycle; and

wherein once said structured hierarchy of phases and deliverables is specified said computer system automates execution of a program by distributing resource assignments as they are needed and providing a continuously updated living schedule integrating progress status of all aspects of a program.

~~defining states associated with phases and deliverables that characterize their status;~~

~~after said defining, providing access to one or more process managers to input initial information regarding phases and deliverables including relationships and dependencies between phases and deliverables and state goals for phases and deliverables;~~

~~providing access to said computer system to one or more process implementers in order for said implementers to enter data indicating changing status of phases/deliverables;~~

~~in accordance with said defined process/lifecycle phases and deliverables, informing one or more process implementers of updated lifecycle resource needs and due dates;~~

in response to a request from a manager, providing overview and drill down reports of updated process/lifecycle status.

23. ~~The method of claim 22 wherein said elements of a process/lifecycle comprise schedules, tasks, relationships, documents and resource requirements.~~

24. The method of claim 22 wherein said elements of a process/lifecycle comprise hourly cost, required skills, and competency levels.

25. The method of claim 22 further comprising:

allowing a process architect to indicate what parts of the process/lifecycle are mandatory and what parts (where parts comprise objects, their relationships and the lifecycle itself) can be ~~can be~~ changed by a program manager or team in order to enforce process parameters.

26. The method of claim 22 further comprising:

allowing a process architect to classify a lifecycle based on a series of user-defined criteria that will determine the conditions under which the lifecycle can be used, wherein said user-defined criteria can comprise one or more of:

the type of product being developed;

the market to which the product will be sold; and

a business unit for which the product is intended, so that the computer system can assist a program manager in selecting the most appropriate lifecycles for a development program.

27. ~~The method of claim 26 further comprising assisting a program manager in selecting the most appropriate lifecycles for a development program.~~

28. The method of claim 22 further comprising:

allowing a program manager to indicate other users that will be part of a program by assigning individuals to roles specified in a program lifecycle;

creating an association between roles or users and ~~and~~ program tasks and

thereby supporting automated execution including ~~(putting resource assignments things on~~
user's tasks list when those resource assignments become active and allowing users to ;
communicateing with users, ~~etc.)~~ when the program is activated.

29. ~~The method of claim 28 further comprising:~~

~~sending tasks to a user's personal task lists when said tasks are needed, based on approvals
and the progress of work on related tasks or groups of tasks.~~

30. The method of claim 28 ~~29~~ wherein a task sent to users may have linked to them
documents or other information needed to complete said task.

31. The method of claim 28 further comprising:

providing one or more users, ~~(such as both process implementators~~implementers and project
managers), with real time/living schedule reports that reflect the latest updates and revisions.

32. The method of claim 31 further wherein said updates and revisions comprise
revisions made by users to their tasks via a communication channel.

33. The method of claim 31 further comprising:

wherein said updates and revisions comprise addition or removal of tasks or groups of tasks
from the overall process via a communication channel.

34. The method of claim 22 further comprising:

enforcing a consistent process structure/hierarchy comprising ~~(lifecycles, phases,~~
deliverables, and/or resource assignments);

enforcing a consistent mapping of organizational structure comprising ~~(divisions and/or,~~
business units);

consolidating schedule, cost, risk and resource information; and

providing a user with a requested report at any requested level in the process hierarchy and
for any requested part of the company.

35. The method of claim 22 further comprising:

comparing real time forecast data from individual users to plan values for schedule and costs;

changing the state of an indicator when user defined tolerances are exceeded; and

5 | notifying users of impending schedule slips or cost overruns wherein said comparing comprises comparing forecast duration to plan duration and comparing forecast cost to plan cost.

36. The method of claim 35 further wherein notification of a slip in a schedule is escalated to higher level reports in the process hierarchy only when said slip occurs on a schedule critical path, thereby making potential schedule delays along the critical path visible in the highest level reports.

10 | 37. The method of claim 36 further comprising allowing a user to view an alert of a slip in a higher level report and allowing the user to drill down to more detailed, lower level reports to get to the source of said slip.

15 | 38. A method of evaluating and comparing a group of product development programs in a portfolio using a computer system comprising:

allowing a user to define program-specific metrics for two or more programs that will be tracked by said computer system;

allowing a user to define how metric values will be obtained during execution of a program; and

20 | presenting to a user multi-program portfolio data regarding multiple programs' phase, cost, schedule, and risk status.

39. The method of claim 38 further wherein said metrics can be derived from system data (e.g. cost to date).

40. The method of claim 38 further wherein said metrics can be derived from user input during reviews (e.g. sales forecasts).

25 | 41. The method of claim 38 further wherein said metrics can be derived from quantitative responses to one or more questions.

42. The method of claim 38 further wherein said metrics can be derived from a user-defined mathematical formula involving one or more other metrics (e.g. metric 1 divided by metric 2).

43. The method of claim 41 further comprising:
5 for metrics derived from questionnaire responses, allowing a user to define the questions to be associated with the metric; and

for metrics derived from questionnaire responses, allowing a user to define a questions response scale.

44. The method of claim 41 further comprising:
10 allowing a user to specify which users will receive an electronic questionnaire that will be used to capture responses.

45. The method of claim 41 further comprising:
allowing users to analyze and discuss user responses, and to enter a consensus score to be used in calculating metric values for program and multi-program analysis.

46. The method of claim 38 further comprising providing users with metric reports to support program review and portfolio level decision making, said metric reports derived from one or more of:

system data;

user input during reviews;

20 quantitative responses to one or more questions;

user define mathematical formula involving one or more other metrics.

47. The method of claim 38 further comprising:
allowing users to compare program attractiveness and performance by creating customized tabular reports and charts of the programs and metrics they wish to analyze.

25 48. ~~A network based method for automating requesting and assigning resources to work on projects comprising:~~

allowing a user to search for available resources/users with the skill and competency level required to accomplish tasks on a development project with a single action;

returning to a user a list of resources/users;

including in said returned list an analysis of how a proposed assignment will impact overall utilization of indicated resources;

including in said returned list an analysis of how well the resources are able to satisfy the demands of the assignment;

allowing the user to request a single user or group of users from one or more users acting as resource managers, via the web;

routing a request to the appropriate users acting as functional managers for review;

providing reports that show the detailed impact of the assignment on the requested user(s) and allows the user acting as the functional manager to approve, reject, or propose an alternative user; and

routing the functional managers decision back to the requesting user for review, who can accept the decision or make another resource request, wherein accepting the decisions automatically assigns the user in question to the program and gives the assigned user him access to the web based program workspace.

49. The method of claim 9 wherein parent based rules further comprise one or more of:
a workflow process in a deliverable is automatically initiated when the deliverable becomes active;

when a phase is activated, the deliverables it contains are activated.

50. The method of claim 12 wherein said business model objects further can comprise one or more of: program and gate review.

51. The method of claim 12 wherein said business model objects further can comprise one or more of: codes and metrics.

52. The system of claim 13 further comprising: one or more methodologies;
wherein each of said methodologies comprises one or more similar lifecycles.

53. The method of claim 3 wherein a resource assignment object can be activated just-in-time, e.g., only after all predecessors to a deliverable or phase of program containing the resource assignment are complete.

54. The method of claim 22 further comprising:

defining states associated with phases and deliverables that characterize their status;

after said defining, providing access to one or more process managers to input initial information regarding phases and deliverables including relationships and dependencies between phases and deliverables and to indicate goals for phases and deliverables;

providing access to said computer system to one or more process implementers in order for said implementers to enter data indicating status of resource assignments;

in accordance with said defined process/lifecycle phases and deliverables, informing one or more process implementers of updated resource assignments and due dates;

in response to a request from a manager, providing overview and drill-down reports of updated process/lifecycle status.

55. The method of claim 22 further comprising:

calculating a risk score for a risk by combining scores for the risk probability and the risk severity; and

adding a number of individual risk scores to get a total risk index.

56. The method of claim 36 further wherein a schedule slip is determined by examining changes in one or more durations.

57. The method of claim 21 wherein activation of a resource assignment object triggers one or more task notifications; and

further comprising automatically notifying a process implementer using said computer system of an assigned task in response to said activated resource assignment object.

APPENDIX B

All claims pending in 09/883,094 with entry of this amendment
(Provided as a courtesy to the Examiner for ease of reference)

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What is claimed:

1. A method of designing a process lifecycle using a computer system comprising:
presenting a series of user interfaces allowing a process architect to define a process lifecycle
using business model objects as building blocks;

10 presenting input indications in said series of user interfaces allowing a process architect to
specify what parts of said defined process lifecycle can be deleted or modified;

registering input of a process architect to create one or more process lifecycles; and

wherein said parts of said process lifecycle comprises one or more of said business model
objects or one or more relationships between said business model objects.

15 2. A method of initiating a product development process using a computer system
comprising:

presenting one or more user interfaces allowing a program manager to select from one or
more defined process lifecycles;

20 presenting a series of user interfaces allowing a program manager to modify those parts of
a selected process lifecycle that are specified as modifiable in said process lifecycle;

presenting a series of user interfaces allowing a program manager to make assignments of
process implementers to roles in said process lifecycle; registering input of a program manager to
create one or more program lifecycles; and

25 initiating a program lifecycle as a program for automated execution in response to an
indication from a program manager.

3. A method of executing a product development program using a computer system
comprising:

using an instance of a product development process, with one or more predefined roles assigned to one or more process implementers, to coordinate activity of various resources;

presenting one or more user interfaces to one or more process implementers to provide a task list of resource assignments to said one or more process implementers;

5 presenting one or more user interfaces to one or more process implementers to receive data indicating completed or uncompleted resource assignments from said one or more process implementers;

aggregating data received from said one or more process implementers into project summary data; and

10 presenting project summary data to a program manager.

4. The method of claim 1 wherein one or more business objects are associated with one or more states that characterize said one or more business object's status.

6. The method of claim 3 wherein behavior of a business object depends on one or more business rules.

7. The method of claim 3 wherein business objects can transition between states as a result of changes of state of other business objects in accordance with one or more business rules.

8. The method of claim 7 wherein business rules can be defined during the initial design of a lifecycle or during the modification of a lifecycle for a particular program or can be imposed by the overall design of the software system.

20 9. The method of claim 3 wherein business objects can be combined to form a structure or hierarchy where rules associated with a business object are based on one or more factors comprising:

contents of said business object;

business rules of said business object;

25 relationships of said business object to other business objects; and
parent business objects of said business object.

10. The method of claim 9 further wherein:
contents based rules comprise one or more of:

a gate review business object cannot be complete until all its content questionnaires
are complete; and

a project business object cannot be completed until all its phases are complete;
business rules of a business object comprise:

lifecycle applicability rules that determine for which type of program a lifecycle can
be used;

environment sensitivity rules that determine the behaviors and/or views of a business
object based on the environment of a business object;

relationships based rules comprise:

when a deliverable has a start to finish relationships with another deliverable said
deliverable cannot go active until a predecessor deliverable is complete; and

parent based rules comprise one or more of:

a phase is a parent to a deliverable;

a lifecycle is a parent to phases; and

a methodology is a parent to lifecycles.

11. The method of claim 2 wherein said computer system presents interfaces to a
program manager through which said manager:

inputs profile information;

receives and reviews candidate lifecycles;

selects a desired lifecycle;

modifies a selected lifecycle;

creates an instance of a selected and/or modified lifecycle for a particular development
program; and

assigns users to predefined roles for said particular development program.

12. The method of claim 3 wherein said business model objects can comprise one or more of: methodology, lifecycle, role, phase, deliverable, resource assignment, fixed cost, and risk.

13. A computer system software engine usable for designing process lifecycles and managing and executing instances of process lifecycles for particular programs comprising: one or
5 more lifecycles;

wherein each of said lifecycles comprises one or more phases; and

wherein each of said phases can comprise one or more deliverables.

14. The system of claim 13 further comprising:

wherein each of said lifecycles can comprise one or more of role, cost, resource assignment,
10 and risk data.

15. The system of claim 13 further comprising:

wherein each of said phases can comprise one or more of role, cost, resource assignment, and
risk data.

16. The system of claim 13 further comprising:

wherein each of said deliverables can comprise one or more of role, cost, resource
15 assignment, and risk data and one or more files of any type.

17. The method of claim 3 wherein said states can comprise one or more of: pending,
planning, active, complete, inactive, canceled; and additional states.

18. The method of claim 3 wherein object state transitions can be manual or automatic.

19. The method of claim 3 wherein automatic object state transitions can occur based on
20 transitions of other related objects.

20. The method of claim 3 wherein an object state transition can cause other cascading
object state transitions that thereby automate aspects of the development process.

21. The method of claim 1 wherein a resource assignment object can be initialized to be activated just-in-time, e.g., only after all predecessors to a deliverable or phase of program containing the resource assignment are complete.

22. A method of managing a product development process using a computer system
5 comprising:

defining elements of a process lifecycle in a structured hierarchy of resource assignments, phases and deliverables;

wherein once said structured hierarchy of phases and deliverables is specified, said computer system is capable of enforcing required aspects of said process lifecycle; and

wherein once said structured hierarchy of phases and deliverables is specified said computer system automates execution of a program by distributing resource assignments as they are needed and providing a continuously updated living schedule integrating progress status of all aspects of a program.

24. The method of claim 22 wherein said elements of a process/lifecycle comprise hourly cost, required skills, and competency levels.

25. The method of claim 22 further comprising:

allowing a process architect to indicate what parts of the process/lifecycle are mandatory and what parts (where parts comprise objects, their relationships and the lifecycle itself) can be changed
20 by a program manager or team in order to enforce process parameters.

26. The method of claim 22 further comprising:

allowing a process architect to classify a lifecycle based on a series of user-defined criteria that will determine the conditions under which the lifecycle can be used, wherein said user-defined criteria can comprise one or more of:

25 the type of product being developed;

the market to which the product will be sold; a business unit for which the product is intended, so that the computer system can assist a program manager in selecting the most appropriate lifecycles for a development program.

28. The method of claim 22 further comprising:

5 allowing a program manager to indicate other users that will be part of a program by assigning individuals to roles specified in a program lifecycle;

creating an association between roles or users and program tasks and

thereby supporting automated execution including putting resource assignments on user's tasks list when those resource assignments become active and allowing users to communicate with users when the program is activated.

30. The method of claim 28 wherein a task sent to users may have linked to them documents or other information needed to complete said task.

31. The method of claim 28 further comprising:

providing one or more users, such as process implementers and project managers, with real time/living schedule reports that reflect the latest updates and revisions.

32. The method of claim 31 further wherein said updates and revisions comprise revisions made by users to their tasks via a communication channel.

33. The method of claim 31 further comprising:

20 wherein said updates and revisions comprise addition or removal of tasks or groups of tasks from the overall process via a communication channel.

34. The method of claim 22 further comprising:

enforcing a consistent process structure/hierarchy comprising lifecycles, phases, deliverables, and/or resource assignments;

25 enforcing a consistent mapping of organizational structure comprising divisions and/or business units;

consolidating schedule, cost, risk and resource information; and

providing a user with a requested report at any requested level in the process hierarchy and for any requested part of the company.

35. The method of claim 22 further comprising:

comparing real time forecast data from individual users to plan values for schedule and costs;

changing the state of an indicator when user defined tolerances are exceeded; and

notifying users of impending schedule slips or cost overruns wherein said comparing comprises comparing forecast duration to plan duration and comparing forecast cost to plan cost.

36. The method of claim 35 further wherein notification of a slip in a schedule is escalated to higher level reports in the process hierarchy only when said slip occurs on a schedule critical path, thereby making potential schedule delays along the critical path visible in the highest level reports.

37. The method of claim 36 further comprising allowing a user to view an alert of a slip in a higher level report and allowing the user to drill down to more detailed, lower level reports to get to the source of said slip.

38. A method of evaluating and comparing a group of product development programs in a portfolio using a computer system comprising:

allowing a user to define program-specific metrics for two or more programs that will be tracked by said computer system;

allowing a user to define how metric values will be obtained during execution of a program; and

presenting to a user multi-program portfolio data regarding multiple programs' phase, cost, schedule, and risk status.

39. The method of claim 38 further wherein said metrics can be derived from system data (e.g. cost to date).

40. The method of claim 38 further wherein said metrics can be derived from user input during reviews (e.g. sales forecasts).

41. The method of claim 38 further wherein said metrics can be derived from quantitative responses to one or more questions.

5 42. The method of claim 38 further wherein said metrics can be derived from a user-defined mathematical formula involving one or more other metrics (e.g. metric 1 divided by metric 2).

43. The method of claim 41 further comprising:

for metrics derived from questionnaire responses, allowing a user to define the questions to be associated with the metric; and

for metrics derived from questionnaire responses, allowing a user to define a questions response scale.

44. The method of claim 41 further comprising:

allowing a user to specify which users will receive an electronic questionnaire that will be used to capture responses.

45. The method of claim 41 further comprising:

allowing users to analyze and discuss user responses, and to enter a consensus score to be used in calculating metric values for program and multi-program analysis.

20 46. The method of claim 38 further comprising providing users with metric reports to support program review and portfolio level decision making, said metric reports derived from one or more of:

system data;

user input during reviews;

quantitative responses to one or more questions;

25 user define mathematical formula involving one or more other metrics.

47. The method of claim 38 further comprising:
allowing users to compare program attractiveness and performance by creating customized
tabular reports and charts of the programs and metrics they wish to analyze.

5 49. The method of claim 9 wherein parent based rules further comprise one or more of:
a workflow process in a deliverable is automatically initiated when the deliverable
becomes active;
when a phase is activated, the deliverables it contains are activated.

50. The method of claim 12 wherein said business model objects further can comprise
one or more of: program and gate review.

10 51. The method of claim 12 wherein said business model objects further can comprise
one or more of: codes and metrics.

52. The system of claim 13 further comprising: one or more methodologies;
wherein each of said methodologies comprises one or more similar lifecycles.

15 53. The method of claim 3 wherein a resource assignment object can be activated just-in-
time, e.g., only after all predecessors to a deliverable or phase of program containing the resource
assignment are complete.

20 54. The method of claim 22 further comprising:
defining states associated with phases and deliverables that characterize their status;
after said defining, providing access to one or more process managers to input initial
information regarding phases and deliverables including relationships and dependencies between
phases and deliverables and to indicate goals for phases and deliverables;
providing access to said computer system to one or more process implementers in order for
said implementers to enter data indicating status of resource assignments;
in accordance with said defined process/lifecycle phases and deliverables, informing one or
25 more process implementers of updated resource assignments and due dates;

in response to a request from a manager, providing overview and drill-down reports of updated process/lifecycle status.

55. The method of claim 22 further comprising:

5 calculating a risk score for a risk by combining scores for the risk probability and the risk severity; and
adding a number of individual risk scores to get a total risk index.

56. The method of claim 36 further wherein a schedule slip is determined by examining changes in one or more durations.

57. The method of claim 21 wherein activation of a resource assignment object triggers one or more task notifications; and

further comprising automatically notifying a process implementer using said computer system of an assigned task in response to said activated resource assignment object.